REMARKS

In the Office Action dated June 14, 2007, the drawings were objected to as being informal. In response, professionally-lettered drawings (Figs. 1-6) are submitted herewith on the attached replacement sheets. The drawings submitted herewith conform in all respects to the requirements of 37 C.F.R.§ 1.84.

Claims 1-7, 9-23 and 25-33 were rejected under 35 U.S.C. §103(a) as being unpatentable over the article by Clarke et al., in view of the Prince patent, and further in view of the Brady et al. published application.

This rejection is respectfully traversed for the following reasons.

The Examiner relied on Clarke et al. article as disclosing a method and apparatus for automatically classifying atherosclerotic plaque based on composition, in order to assess a patient's risk of stroke, which the Examiner as stated is "equivalent to propensity for dislodgement as claimed in the instant application."

Applicants have previously responded to previous rejections based on the Clarke et al. article, and there is no need to repeat those arguments herein, except to note that the Examiner has not specifically responded to any of those arguments. In general, it is Applicants' position that although the Clarke et al. reference generally describes a technique for identifying the composition of plaque in vessels, there is no teaching or suggestion in the Clarke et al. article to employ contrast agent for characterization of plaque composition and/or the propensity of plaque for dislodgement, and consequently there is no teaching or suggestion in the Clarke et al. article to evaluate contrast agent uptake by the plaque as a predictor for such dislodgement.

Applicants have also previously discussed the teachings of the Prince reference, and again the Examiner has not responded to those arguments. The most important and fundamental teaching in the Prince reference, which is the basis for all of the embodiments of the techniques disclosed therein, is to evaluate different types of pathologies from contrast-enhanced images of blood vessels wherein an intensity distribution over time, within an angiographic image of the vessel, is used. The images obtained in the Prince reference are simply conventional angiographic images, and although a contrast agent is of course used to produce these types of images, there is no mention whatsoever in the Prince reference of taking uptake of the contrast agent by the plaque itself into consideration as an evaluation technique, for any purpose. The application of the contrast agent in the Prince reference is for its conventional purpose, namely to enhance visualization of the vessels themselves. If there is a time-dependent uptake of the contrast agent by the plaque in the vessels, this was clearly either overlooked by Prince, or considered unimportant, since there is no mention whatsoever of the occurrence of such uptake, much less making any use thereof for evaluation purposes.

Moreover, the Prince reference does not constitute a teaching to make use of the variation in signal intensity from image-to-image in multiple, sequentially obtained images, but instead, with reference to Figure 9 (at column 4, lines 59-65, which is the only location in the Prince reference that mentions Figure 9) the evaluation of the signal intensity with respect to time is solely for the purpose of establishing that there is a short window, during contrast infusion, when the aorta signal intensity is higher than that of the IVC. The fact that this phenomenon is established is then used in the techniques disclosed in the Prince reference for determining the optimum timing

of contrast agent infusion, and other parameters associated with a contrast-enhanced image acquisition. Although Table IV at column 36 of the Prince reference lists the effect of various types of pathologies on the signal intensity ratio,. this information is not used as a predictor for those types of pathologies, but is for the opposite purpose of showing that, if those pathologies are present, the signal intensity can be modified so as to be different from the intensity that would be expected in a healthy patient. In fact, in view of the error margins that are listed in Table IV, it is clear that the values listed therein have no predictive effect whatsoever, since the same value could fall into any of those categories when expanded by the error margins.

The most that a person of ordinary skill in the field of contrast agent-enhanced imaging would learn from the Prince reference, without having had the benefit of first reading Applicants' disclosure, is that the Prince reference generally describes contrast agent-intensified angiography wherein identification of the vessel *volume* can be assisted by using contrast agents. Since the Clarke et al. article is not concerned at all with a determination of vessel *volume*, with or without the use of a contrast agent, there is no reason why a person of ordinary skill in the field of contrast agent-enhanced imaging would believe that anything disclosed in the Prince reference would be of assistance for the compositional determination that is the goal of the Clarke et al. article.

The Examiner relied on the Brady et al. reference as providing a general teaching, in paragraph [0002] that different tissue types have different contrast agent uptakes and flush properties, and therefore study of the magnetic resonance signal over time enables identification of different tissue types. While this is certainly a true

statement, it is merely noted in the Brady et al. reference in the introductory, background information, and the techniques disclosed in the Brady et al. reference teach away from the subject matter of the present application.

The Brady et al. reference teaches improved characterization of tissue types using a dynamic, contrast agent-intensified magnetic resonance imaging procedure. Together with a T1-value determination, the technique disclosed in the Brady et al. reference allows differentiation between benign and malignant tissue, as described in the Abstract and paragraph [0002]. The T1 relaxation values are taken into account because the intensification caused by the contrast agent also depends on the T1 relaxation time, as stated in paragraph [0003]. To determine the T1 relaxation values, successive pulse sequences with different flip angles are executed, and the resulting magnetic resonance signals are evaluated, as described in paragraphs [0012] through [0014]. This measurement, however, ensues *without* a contrast agent administration, as is clear from the statement "...measuring the intrinsic T1 value of the sample" in the middle of paragraph [0015]. After administration of the contrast agent, only a single contrast agent-intensified image is generated, as set forth in claim 22 of the Brady et al. publication. Moreover, Figure 6 of the Brady et al. reference shows only a single contrast agent-intensified image, as is also clearly stated in paragraphs [0070] and [0071]. Moreover, there is no "linking" of the application of any technique disclosed in the Brady et al. reference for the purpose of identifying plaque.

Applicants respectfully submit the Examiner has simply identified isolated teachings from a number of references, and has concluded, only with the benefit of first reading Applicants' disclosure, that these desperate teachings would be

combined by those of ordinary skill in the relevant technology. There is no teaching or guidance in any of these references to substantiate this speculation and, for the reasons discussed above, there are compelling reasons in each of the references that, if not dissuading those of ordinary skill from combining their teachings, at least would make the insight to combine those references an insight that supports patentability, rather than a reason for precluding patentability.

Applicants therefore submit that none of claims 1-7, 9-23 or 25-33 would have been obvious to a person of ordinary skill in the field of identifying the dislodgement propensity of plaque in vessels, under the provisions of 35 U.S.C. §103 (a) based on the teachings of Clarke et al., Prince and Brady et al.

Claims 8 and 24 were rejected under 35 U.S.C. §103(a) as being unpatentable over the above combination, further in view of Schneider. In view of the deficiencies of the Clarke et al./Prince/Brady et al. combination, even if that combination were further modified in accordance with the teachings of Schneider, the subject matter of dependent claims 8 and 24 still would not result.

All claims of the application are therefore submitted to be in condition for allowance, and early consideration of the application is respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required, or to credit any overpayment to account No. 501519.

Submitted by,

(Reg. 28,982)

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